

Applicants: TAY, Cheng Siew et al.
Serial No.: 10/735,638
Filed: December 16, 2003
Page 9

REMARKS

Applicants respectfully request reconsideration of the above-identified application in view of the following remarks.

STATUS OF CLAIMS

Claims 1-38 are pending in this application. It is respectfully submitted that no new matter has been added.

CLAIM REJECTIONS

35 U.S.C. § 102 Rejections

On pages 2-3 of the Office Action, the Examiner rejected Claims 1, 3, 4, 6-8 and 10-14 under 35 U.S.C. § 102(e) as being anticipated by Geng et al. (US Patent No. 6,833,615). Applicants respectfully traverse the rejections of these claims under 35 U.S.C. § 102(e) in view of the remarks that follow.

Claim 1 includes “pads suitable to be soldered to respective solder-balls of a device, where a perimeter of a pad has a crack initiation point at a location where cracks in a solder-ball are anticipated to start after said solder-ball is soldered to said pad”. It is respectfully submitted that Geng does not teach this feature.

In contrast, in Fig. 4-5 and Col. 6, Lines 55-56, Geng teaches “two lands 130 and 131, each having an off-center via 134 and 135, respectively”. It is clear from the figures that lands 130 and 131 are the same as pad 104 which is cited by the Examiner. However, neither a “crack initiation point” nor “cracks in a solder-ball” are shown or taught in these figures. They are instead diagrammatic of a land with an off-center via. None of the figures in Geng show or teach a “crack initiation point” or “cracks in a solder-ball”.

In Fig. 7 and Col. 8, Lines 43-48, Geng teaches “Thus these wall segments 125 of lands 104 have a strong propensity towards early collapse, before the solder balls 122 grow large enough to touch one another, or to break apart with sufficient force to cause a significant loss of solder material, or to cause shear stress or shock fatigue damage to

Applicants: TAY, Cheng Siew et al.
Serial No.: 10/735,638
Filed: December 16, 2003
Page 10

lands 104.” It is respectfully submitted that wall segment 125 is not a crack. Instead, it is a thinner wall segment created by the geometry of the off-center via. Such a thin wall segment is taught for allowing the venting of gasses from the solder-ball “before the solder balls 122 grow large enough”. Geng never teaches using the anticipation of where a “crack initiation point” might occur along the perimeter of the pad for controlling the location of traces that merge with the pad.

Claim 8 includes “pads suitable to be soldered to respective solder-balls of a device, said pads having microvias located therein, where a center of a microvia of a pad is farther than a center of said pad from a crack initiation point located on a perimeter of said pad at a location where cracks in a solder-ball are anticipated to start after said solder-ball is soldered to said pad”. It is respectfully submitted that Geng does not teach this feature.

In contrast, in Fig. 4-5 and Col. 6, Lines 55-56, Geng teaches “two lands 130 and 131, each having an off-center via 134 and 135, respectively”. It is clear from the figures that lands 130 and 131 are the same as pad 104 and off-center vias 134 and 135 are the same as via 115 which are cited by the Examiner. As discussed above in relation to claim 1, Geng never teaches using the anticipation of where a “crack initiation point” might occur along the perimeter of the pad for controlling the location of vias within a pad.

It is therefore respectfully submitted that Claims 1 and 8 and the claims dependent therefrom are not anticipated by Geng. The rejection under 35 U.S.C. § 102(e) is therefore requested to be withdrawn.

35 U.S.C. § 103 Rejections

On pages 3-4 of the Office Action, the Examiner rejected Claims 2, 9, 16 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Geng in view of Asai et al. (US Patent No. 6,831,234). Applicants respectfully traverse these rejections under 35 U.S.C. § 103(a).

Claims 2 and 9 depend from Claims 1 and 8 respectively. It is respectfully submitted that the addition of the teachings of Asai does not cure the deficiencies of Geng which have been expressed above regarding Claims 1 and 8. Therefore, it is

Applicants: TAY, Cheng Siew et al.
Serial No.: 10/735,638
Filed: December 16, 2003
Page 11

submitted that Claims 2 and 9 are patentable. Claims 16 and 19, which depend from Claims 15 and 18 respectively will be addressed below.

On pages 4-5 of the Office Action, the Examiner rejected Claims 15 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Geng in view of Barton (US Patent No. 6,724,194). Applicants respectfully traverse these rejections under 35 U.S.C. § 103(a).

Claim 15 includes "pads soldered to respective solder-balls of said device, said pads having microvias located therein, where a center of a microvia of a pad is farther than a center of said pad from a crack initiation point located on a perimeter of said pad at a location where cracks in a solder-ball are anticipated to start after said solder-ball is soldered to said pad". As discussed above in reference to Claim 8, the claimed material is not taught by Geng.

Claim 18 includes "pads soldered to respective solder-balls of said device, where a perimeter of a pad has a crack initiation point at a location where cracks in a solder-ball are anticipated to start after said solder-ball is soldered to said pad, and where said pad merges with a respective trace along a portion of said perimeter that does not include a vicinity of said crack initiation point, wherein said portion is not longer than the length of one quarter of said perimeter". As discussed above in reference to Claim 1, the claimed material is not taught by Geng.

It is respectfully submitted that the addition of the teachings of Barton does not cure the deficiencies of Geng which have been expressed above regarding Claims 1 and 8. Therefore, it is submitted that Claims 15 and 18 and the claims dependent therefrom are patentable.

Applicants respectfully request that the Examiner withdraw the rejection of Claims 2, 9, 16 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Geng et al. in view of Asai et al., the rejection of Claims 15 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Geng et al. in view of Barton and the rejection of Claims 17 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Geng et al.

Applicants acknowledge the Examiner's citation of non-applied references. It is respectfully submitted that the pending claims are patentable over this art.

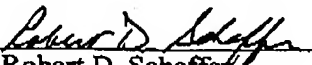
Applicants: TAY, Cheng Siew et al.
Serial No.: 10/735,638
Filed: December 16, 2003
Page 12

CONCLUSION

The Examiner is invited to telephone the undersigned to discuss any still outstanding matters with respect to the present application.

Please credit or debit Deposit Account No. 50-3355 if any fees are due.

Respectfully submitted,


Robert D. Schaffer
Attorney for Applicant(s)
Registration No. 33,775

Dated: December 5, 2006

Pearl Cohen Zedek Latzer, LLP.
1500 Broadway, 12th Floor
New York, NY 10036
Phone: (646) 878-0800
Fax: (646) 878-0801